1/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--INFRARED ABSORPTION SPECTRA OF ALKALINE EARTH METAL TETRATHIOCYANATOZINCATES AND TETRATHIOCYANATOCADMATES -U-

AUTHOR-(03)-KHARITONOV, YU.YA., TSINTADZE, G.V., TSIVADZE, A.YU.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 710-14

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKALINE EARTH METAL, CRYSTAL, COMPLEX COMPOUND, CYANATE, THICYANATE, IR ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0556 STEP NO--UR/0078/70/015/003/0710/0714

CIRC ACCESSION NO--AP0113447

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0113447 UNCLASSIFIED PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF SR(NCS) SUB2 .3H SUB2 O AND M PARENTHESIS Z(NCS) SUB4 PARENTHESIS .NH SUB2 O (I) (M EQUAL MG, CA, SR, OR BA; Z EQUAL ZN OR CD, AND N EQUAL 1-4) WERE DETD. AND THEIR ABSORPTION MAX. ARE TABULATED. THE TETRATHIOCYANATES OF ZN ARE COORDINATED VIA N AND THOSE OF CD VIA S ATOMS. IN THE CRYST. STATE, I (M EQUAL MG; Z EQUAL NZ) AND ALL CD COMPLEXES HAD BRIDGING NCS GROUPS. BRIDGING WAS NOT OBSD. IN SOLNS. SR(NCS) SUB2.3H SUB2 O HAD IONIC NCS GROUPS IN THE SOLID STATE AS WELL AS IN SOLN.

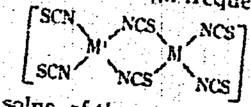
UNCLASSIFIED

Acc. Nr:
AP0055527

Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code:
US 0000

116340b **Infrared spectra of some zinc and nickel trithiocyanate complexes.** Kharitonov, Yu. Ya.; Tsintsadze, G. V.; Tsivadze, A. Yu. (N. S. Kurnakov Inst. Gen. Inorg. Chem., Moscow, USSR). *Inorg. Nucl. Chem. Lett.* 1970, (2), 201-3 (Eng). The ir spectra of $MM^1(NCS)_3 \cdot n\ H_2O$ (M = Na, K, Cs, NH_4^+, $C(NH_2)_3^+$, and 0.5 Ba; M^1 = Zn, Ni; n = 0–4), and $Zn(NCS)_2 \cdot 2H_2O$ were investigated in the cryst. state and in aq. solns. The intense high frequency $\nu(CN)$ components at 2150–70 cm^{-1} were found for all the complexes studied, suggesting the existence of NCS bridges. Strong broad bands at 280–2100 and 2100–20 cm^{-1} were obsd. for the Zn and Ni complexes, resp., indicating terminal NCS groups which are N-bonded. The complexes studied probably have dimeric-tetrahedral structures (I) in the cryst. state. The high frequency $\nu(CN)$ component in



(I)

the spectra of aq. solns. of the complexes was not obsd. indicating that the thiocyanate bridges are broken in soln. CJJN

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pc

REEL/FRAME
19840825

7

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--INFRARED ABSORPTION SPECTRA OF TRITHIOCYANATE COMPLEXES OF ZINC -U-

AUTHOR--KHARITONOV, YU.YA., TSINTCASZE, G.V., TSIVADZE, A.YU.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 390-4

205/25

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, THIOCYANATE, ZINC, ZINC COMPLEX, SODIUM COMPOUND, POTASSIUM COMPOUND, SELENIUM COMPOUND, MERCURY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1269 STEP NO--UR/0078/70/015/002/0390/0394

CIRC ACCESSION NO--AP0055940

UNCLASSIFIED

Acc. Nr: AP0055940 Abstracting Service: CHEMICAL ABST. 6-70

Ref. Code: UR 0038

116336e **Infrared absorption spectra of trithiocyanate complexes of zinc.** Kharitonov, Yu. Ya.; Tsintsadze, G. V.; Tsivadze, A. Yu. (Inst. Obshch. Neorg. Khim. im. Kurnakova, Moscow, USSR). *Zh. Neorg. Khim.* 1970, 15(2), 390-4 (Russ). Ir spectra of $M[Zn(NCS)_3].xH_2O$ (M = Na, K, Cs NH_4, guanidinium, or 1/2 Ba and x = 1-3) and $M'(NCX)_2.nH_2O$ (I) (M' = Zn, Cd, Hg and X = S or Se) are given. An anal. of their absorption bands is tabulated. The tris(thiocyanate) complexes have bridged as well as monodentate (coordinated via N) NCS groups. In I compds., NCX groups are bridged with the exception of $Hg(SCN)_2$ where they are monodentate. Bridging NCS groups were not obsd. in aq. solns. HMJR

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REEL/FRAME
19841269

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Acc. Nr: AP0055528

Abstracting Service: CHEMICAL ABST. 6-70

Ref. Code: US0000

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116316y **Infrared spectra of zinc hexathiocyanates.** Kharitonov, Yu. Ya.; Tsintsadze, G. V.; Tsivadze, A. Yu. (N. S. Kurnakov Inst. Gen. Inorg. Chem., Moscow, USSR). *Inorg. Nucl. Chem. Lett.* 1970, 6(2), 197-200 (Eng). $M_4[Zn(NCS)_6]\cdot nH_2O$, $M_3M^1[Zn(NCS)_6]nH_2O$, and $M_2M^1_2[Zn(NCS)_6]nH_2O$ (M and M^1 = Na, K, Cs, NH_4^+, $C(NH_2)_3^+$, and 0.5 Ba; n = 0-4) were characterized by ir spectra. The position and intensity of the $\delta(NCS)$ and $2\delta(NCS)$ bands suggest that isothiocyanate groups, ZnNCS, are present in all the complexes investigated. According to their distorting effect on $[Zn(NCS)_6]^{4-}$ anions in the crystn. state, the following sequence of cations is tentatively proposed. $NH_4^+ < Na^+ < K^+ < C(NH_2)_3^+ < Cs^+$. In aq. solns., $[Zn(NCS)_6]^{4-}$ is predominately present in the non-dissocd. state.

CJJN

pc

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REEL/FRAME
19840826

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1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SEMICONDUCTOR DETECTOR FOR ATOMIC NITROGEN AND ITS USE IN STUDIES
OF SOME PHYSICOCHEMICAL PROCESSES -U-
AUTHOR-(02)-TSIVENKO, V.I., MYASNIKOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 267-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT

TOPIC TAGS--NITROGEN, SEMICONDUCTOR MATERIAL, SORPTION, ZINC OXIDE,
ELECTRICAL CONDUCTIVITY, CHEMICAL DECOMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0760 STEP NO--UR/0195/70/011/001/0267/0269

CIRC ACCESSION NO--AP0107302
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0107302
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHEMISORPTION AT AT. N ON THIN PLATES OF ZN OXIDE CAUSES A MARKED DROP IN ITS ELEC. COND. THIS PHENOMENON CAN BE USED IN STUDY OF FORMATION AND DECAY OF AT. N.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--HEPATO PORTAL ENCEPHALOMYELOPATHY -U-

AUTHOR-(04)-BGOLEPOV, N.K., MARTYNOV, YU.S., MALKOVA, YE.V., TSIVILKO, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 4, PP 496-506

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, BILE, BRAIN, SPINAL CORD, BONE MARROW, CIRRHOSIS, DIET, MEMORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1661 STEP NO--UR/0246/70/070/004/0496/0506

CIRC ACCESSION NO--AP0106407

UNCLASSIFIED

2/2 030

CIRC ACCESSION NO--AP0106407 UNCLASSIFIED PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENTATION IS CONCERNED WITH THE DESCRIPTION OF A NEW ORIGINAL FOR OF PATHOLOGY: HEPATO PORTAL ENCEPHALOMYELOPATHY, DEVELOPING IN PORTECAVAL DYSCIRCULATORY DISORDERS IN 54 PATIENT WITH DIFFERENT DISEASES OF THE LIVER AND THEI BILIARY TRACT. THE AGE OF THE PATIENTS RANGED FROM 16-63. IN 9 CASES THERE WAS A PATHOHISTOLOGICAL STUDY OF THE BRAIN AND SPINAL MARROW, AND A HISTOCHEMICAL STUDY OF THE BRAIN TISSUE AND LIVER FOR CU. ENCEPHALOMYELOPATHY OCCURS AT THE DIFFERENT STAGES OF LIVER CIRRHOSIS FORMATION AND IS CHARACTERIZED BY POLYMORPHIC NEUROPSYCHIC DISORDERS IN THE FORM OF MEMORY AND ATTENTION WEAKENING, INTELLECTUAL LOWERING, DIFFERENT PYRAMIDAL AND EXTRAPYRAMIDAL DISTURBANCES, SYMPTOMS OF ORAL AUTOMATISMS, PELVIC DISORDERS. THE SPECIAL FEATURS OF PATHOMORPHOLOGICAL AND HISTOCHEMICAL BRAIN LESIONS IN HEPATO PORTAL ENCEPHALOMYELOPATHY, CONDITIONED BY CHRONIC LIVER AND BILIARY TRACT PATHOLOGY IN COMPARISON WITH WILSON KONOVALOV DISEASE IS THE ABSENCE OF CU IN THE BRAIN TISSUES AND LIVER, AS WELL AS THE ABSENCE OF THE I AND II TYPE OF ALZHEIMER'S GLIA. COMMON FOR BOTH DISEASES IS THE FEATURES OF THE PARENCHYMATOUS CELLULAR AND VASCULAR PATHOLOGY OF A TOXIC NATURE AND THE PHENOMENA OF FIGURATIVE NUCLEI OF THE ASTROCYTE GLIA. THE TREATMENT OF ENCEPHALOMYELOPATHY SHOULD FIRST OF ALL BE DIRECTED AGAINST THE MAIN DISEASE AND SHOULD INCLUDE MEDICATIVE PREPARATIONS, A DIET, AND IN SOME CASES SURGICAL TREATMENT.

UNCLASSIFIED

USSR

UDC 548.4

MASLOVA, L. A., TSIVINSKIY, S. V., Physicotechnical Institute of Low Temperatures, Ukrainian SSR Academy of Sciences

"Investigation of the Principles Underlying Formation of the Dislocation Structure in Alkali Halide Crystals of a Given Shape Grown in a Solid Crucible by the Bridgman Method"

Moscow, Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 11, Nov 73, pp 2353-2356

Abstract: The principles underlying formation of the dislocation structure during crystal growth can be studied both to discover the factors which determine the average dislocation density and to establish the processes responsible for the formation of small-angle boundaries. This paper takes both these directions. It has been found that when crystals are grown in a solid crucible, dislocations are formed as a result of plastic deformation occurring as the crystal cools from the melting point to a temperature T_1 at which the crystal still remains plastic (e.g., room temperature). Plastic deformation is close to uniaxial stretching and occurs as a consequence of adhesion of the crystal to the walls of the crucible due to the

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MASLOVA, L. A., TSIVINSKIY, S. V., Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 11, Nov 73, pp 2353-2356

difference between the coefficients of linear expansion of the crystal α_1 and the crucible α_2 along the direction of growth. Dislocation density can be evaluated from the equation

$$N = \frac{2(\alpha_1 - \alpha_2)(T_{melt} - T_1)}{bD}, \qquad (1)$$

where b is the interplanar distance for crystallographic planes with low indices perpendicular or nearly perpendicular to the direction of growth; D is the transverse dimension of the crystal: the diameter for circular crystals, and the width of the lateral face on which the dislocation density is determined for specimens with a square cross section. According to (1), as each section of the crystal cools, the dislocation density in this section gradually increases. When the dislocation density passes a critical value, block boundaries with minimum disorientation appear under the influence of thermal stresses. If small-angle boundaries form close to the crystallization front at a distance close to the size of a block,

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MASLOVA, L. A., TSIVINSKIY, S. V., Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 11, Nov 73, pp 2353-2356

they go out to the phase interface and grow along the direction of crystal growth for a distance comparable to the length of the crystal. As a result, large, strongly disoriented blocks are formed which have been given the name of macroblocks. The relation

$$L = \frac{4}{n \cos \phi}\left(\frac{bD}{(\alpha_1 - \alpha_2)\nabla T_n \cos \phi}\right)^{1/3} \qquad (2)$$

has been proposed to evaluate the transverse dimension of macroblocks; where ∇T_n is the axial gradient of temperature in the crystal close to the crystallization front, n is the number of equally justified slip systems in the longitudinal cross section of the crystal, and ϕ is the angle of inclination of the slip plane to the plane perpendicular to the direction of growth. If there are several active disparate slip systems, the most active one should be considered. Equation (1) has been found to be valid for antimony and zinc, and relation (2) has been confirmed for metals. In this paper equations (1) and (2) are experimentally checked for KCl and KBr. The equations were derived on the assumption that the main cause of

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MASLOVA, L. A., TSIVINSKIY, S. V., Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 11, Nov 73, pp 2353-2356

formation of dislocations and small-angle boundaries is thermal stresses. The observed agreement between the calculated and observed values of N and L shows that this assumption is valid as well as confirming the equations. Other mechanisms of formation of dislocations played no appreciable part in the experiments. The authors thank V. I. Startsev and D. N. Bol'shutkin for interest in the work and constructive criticism.

4/4

Single Crystals

USSR

UDC 669.791:539.382

PUSTOVALOV, V. V., VERSHININA, V. V., TSIVINSKIY, S. V., and ALEKSANDROV, B. N.,
Physics Technical Institute of Law Temperatures, Academy of Sciences UkrSSR

"Plastic Deformation of Mercury Single Crystals"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 991-998

Abstract: Plastic deformation of mercury single crystals was studied by recording the extension curve at 77.3, 4.2, and 1.4-1.6°K. It was demonstrated that crystals of mercury have high plasticity down to very low temperatures (1.5-4.2°K). At 4.2 and 1.5°K, a multistage hardening curve was observed, which does not differ in principle from crystals with a different crystalline structure.

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USSR

UDC 669.295.053.28

DIOMIDOVSKIY, D. A., LEVIDOV, V. A., REVUTSKIY, Ye. Ya., TSIVIRKO, G. P.

"Device for Recording the Rate of Level Changes of a Liquid Electrically Conducting Medium"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 163-169. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G216 by the authors).

Translation: The design of a discrete differentiator with inductive output for determination of the rate of level changes of a liquid electrically conducting medium by measurement of the first finite difference in the level of the medium is described. The total error of the device is calculated and the quantization level which minimizes it is determined, for example in measuring the consumption of a mixture of fused salts of Ti with $MgCl_2$. 1 fig; 6 biblio refs.

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USSR

UDC: 681.3.001:51

TSIVIRKO, G.P.

"Estimating the Maximum Systematic Error in Discrete Differentiators"

Tr. Metrol. In-tov SSSR [Works of Metrological Institutes of the USSR], No. 117 (177), 1970, pp 135-138 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 3, 1971, Abstract No. 3B29, from the resume)

Translation: Estimates are given of the maximum systematic error in discrete differentiators (D) of three types, calculating: the difference in instantaneous values of a signal after various time intervals; the difference in preliminarily integrated values of an input signal at two successive, identical intervals of time; the difference in preliminarily integrated values of a signal at two successive identical time intervals, divided by a time pause. The last type of discrete D combines the properties of D of the first two types. An estimate of the systematic error is produced for D of the third type, and the corresponding estimates for the two other types of D are easily found from the first estimate. Two figures: 5 biblio. refs.

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CSO: 1863-W

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SELECTIVE TESTING OF SOME ASPECTS OF STANDARD IN PROCESS OF EXAMINATION -U-

AUTHOR-(02)-TSIVIZOV, N.I., LIZUNOV, Y.F.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 37-38

DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--QUALITY CONTROL, INDUSTRIAL STANDARD, ACCURACY STANDARD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0112 STEP NO--UR/0422/70/000/005/0037/0039

CIRC ACCESSION NO--AP0122378

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0122378
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE TELLS ABOUT SEQUENTIAL EXAMINATION OF STANDARDS WHICH PERMITS TO REVEAL THEIR DEFECTIVE CHARACTERISTICS, EVEN IF SINGULAR, IN SHORTEST TIME AND WITH LEAST EXPENSES. IT IS PROVED THAT THE PROCESS OF SEARCH CAN BE EFFICIENTLY IMPROVED.

UNCLASSIFIED

USSR

UDC 547.341 3

NURTDINOV, S. KH., ISMAGILOVA, N. M., NAZAROV, V. S., ZYKOVA, T. V., SALAKHUTDINOV, R. A., SULTANOVA, R. B., and TSIVUNIN, V. S., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reaction of Aryl- and Diarylchlorophosphites With Cyclic Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 6, Jun 73, pp 1251-1254

Abstract: Phenyl- and diphenylchlorophosphites react with equimolar quantities of cyclohexanone and cyclopentanone upon heating to 130-150° for 17-20 hrs in a closed system, yielding the respective esters of cyclohexen-1-yl(cyclopenten-1-yl)phosphonic acids. The diphenyl ester of cyclohexen-1-ylphosphonic acid (I) reacts with phosphorus pentasulfide converting to the thiophosphonic acid derivative. Bromine adds across the double bond of (I) producing a dibromide which can be dehydrobrominated to diphenyl ester of 2,6-cyclohexadiene-1-ylphosphonic acid.

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USSR

UDC 547.548.1

TSIVUNIN, V. S., ZHELYAGINA, L. V., and KRUTSKIY, L. N., Kuzbassk Polytechnical Institute

"Reaction of Triphenylphosphine with α,β-Unsaturated Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, p 439

Abstract: Reaction of triphenylphosphine with acrylic, methacrylic, and cinnamic acids yields phosphobetaines. Acrylic and methacrylic acids react smoothly overnight in benzene with about a 30% yield. Cinnamic acid reacts much slower, and the yield is poorer. The structure of the products was confirmed by IR analysis and parallel synthesis.

USSR

UDC 547.241

KRUTSKIY, L. N., ZYKOVA, T. V., SALAKHUTDINOV, R. A., TSIVUNIN, V. S., Kazan' Institute of Chemical Technology imeni S. M. Kirov; Kuzbass Polytechnical Institute

"reaction of Diethylaminoethylchlorophosphine with Allyl Iodide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1493-1496

Abstract: Equimolar quantities of diethylaminoethylchlorophosphine and allyl iodide were mixed, and the resultant adduct was decomposed with hydrogen sulfide in ether. The solid adduct changed into a liquid (insoluble in ether) which was then dissolved with simultaneous formation of an ammonium salt. After removing the salt from the filtrate, ethylallylthiophosphonyl chloride was obtained, yield: 42%. Reaction of the acid chloride with alkoxides gives ethylallylthiophosphinates. Sulfur dioxide treatment of the adduct in ether produces a liquid which is insoluble in ether. The liquid dissolves upon hydrochlorination with simultaneous formation of diethylamine hydrochloride and liberation of elemental iodine. Ethylallylphosphonyl chloride heavily contaminated with iodine is isolated from the filtrate in 25% yield. Chemical shifts of a series of trivalent phosphorus chlorides are examined, and the π-contributions to the shielding constant of the phosphorus nucleus are calculated. The results of the study indicate an increase in the positive

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KRUTSKIY, L. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1493-1496

charge on the phosphorus atom and a reduction of donor properties with corresponding substitution of the alkyl radical by electronegative nitrogen and chlorine atoms.

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UDC 547.241.284

NURTDINOV, S. KH., KHAYRULLIN, R. S., ZYKOVA, T. V., TSIVUNIN, V. S., KAMAY, G. KH. (deceased), Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Reaction of Diethylchlorophosphine With Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2158-2162

Abstract: Continuing their studies of chlorophosphine reactions with saturated ketones, the authors synthesized a series of tertiary phosphine oxides by heating (at 100-110°) chlorodiethylphosphine with aliphatic ketones or acetophenone. The chemical structure of the products was confirmed by their IR and NMR spectra and conversion to some other compounds. α-Chloroisopropyldiethylphosphine oxide when treated with alcoholic alkali or acetic anhydride yielded diethylisopropenylphosphine oxide or α-acetoxyisopropyldiethylphosphine oxide. Diethyl-α-phenylvinylphosphine oxide with alcoholic alkali gave sodium dialkylphosphinate. The elemental analysis data and physical constants of the synthesized compounds are given.

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USSR

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UDC 547.241

NURTDINOV, S. KH., KHAYRULLIN, R. S., BURMAKINA, T. V., ZYKOVA, T. V., SALAKHUTDINOV, R. A., TSIVUNIN, V. S., and KAMAY, G. KH. (DECEASED), Kazan' Institute of Chemical Technology

"Reaction of Aryldichlorophosphines with Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1685-1688

Abstract: Continuing their study of the condensation of primary chlorophosphines with ketones, the authors investigated the reaction of phenyl- and tolyldichlorophosphine with saturated ketones. It was found that these components react on heating for 10-20 hours at 90-130° to give cyclic oxaphospholenes, which react with alcohols to give corresponding esters of aryl-γ-ketophosphinic acids. IR, NMR, and PMR spectroscopy methods were used to study the mechanism of the interaction of aryldichlorophosphines with ketones. The results confirm that at one of the stages of the reaction γ-ketophosphinic acid chlorides are formed.

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USSR

UDC 547.476.053

NURTDINOV, S. Kh., ISMAGILOVA, N. M., ZYKOVA, T. V., SALAKHUDINOV, R. A., TSIVUNIN, V. S., and KAMAY, G. Kh., Kazan' Chemico-Technological Institute imeni S. M. Kirov

"Reaction of Alkyldichlorophosphines With Chlorides of Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,486-2,490

Abstract: The reactions of phosphines and other phosphorus derivatives with various acids and acid derivatives have been studied, but no information on alkyldichlorophosphines has thus far been published. The authors studied six members of this group in reactions with acyl chlorides of carboxylic acids. Products in the case of acetyl and benzoyl chlorides, following treatment with the adducts with alcohols, consisted of the esters of the alkylketo-phosphinic acids; in the case of di- and trichloracetyl chlorides, they consisted of vinyl esters of pentavalent phosphorus acids. Procedural details of tests and physical constants of end-products are given.

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USSR

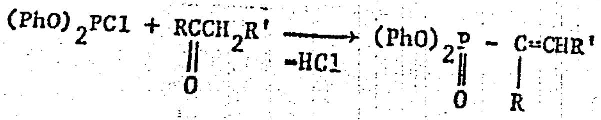
UDC 547.26'118

NURTDINOV, S. KH., KHAYRULLIN, R. S., TSIVUNIN, V. S., ZYKOVA, T. V., KAMAY, G. KH.

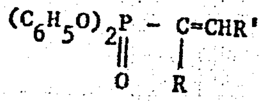
"Interaction of Diarylchlorophosphites with Saturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 123-125

Abstract: It was demonstrated earlier [S. Kh. Nurtidinov, et al., USSR Author's Certificate No 249386, Byull. Izobr., No 25, 1969; ZhOKh, No 40, 36, 1970; ZhOKh, No 40, 2377, 1970] that halogenophosphines react comparatively smoothly with saturated ketones with the formation of cyclic oxaphospholenes. As a continuation of this research, a study was made of the reaction of diphenylchlorophosphite with acetone, methylethyl, methylpropyl, methylbutylketone and acetophenone. The indicated components react with heating to 100-160° for 10-20 hours with the formation of the vinyl derivatives of pentavalent phosphorus:



$$(PhO)_2PCl + R\underset{\underset{O}{\|}}{C}CH_2R' \xrightarrow[-HCl]{} (PhO)_2\underset{\underset{O}{\|}}{P} - \underset{\underset{R}{|}}{C}{=}CHR'$$

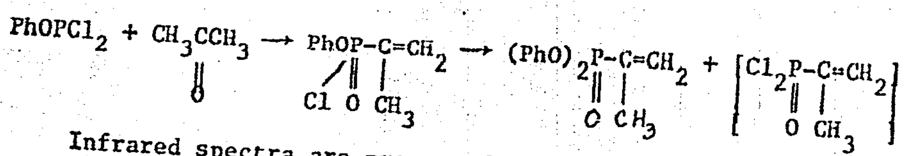


$$(C_6H_5O)_2\underset{\underset{O}{\|}}{P} - \underset{\underset{R}{|}}{C}{=}CHR'$$

USSR

NURTDINOV, S. KH., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 123-125

The primary aryldichlorophosphites react with saturated ketones as follows:



$$PhOPCl_2 + CH_3\underset{\underset{O}{\|}}{C}CH_3 \longrightarrow PhO\underset{\underset{Cl\ \ O}{/\ \|}}{P}-\underset{\underset{CH_3}{|}}{C}=CH_2 \longrightarrow (PhO)_2\underset{\underset{O}{\|}}{P}-\underset{\underset{CH_3}{|}}{C}=CH_2 + \left[Cl_2\underset{\underset{O}{\|}}{P}-\underset{\underset{CH_3}{|}}{C}=CH_2\right]$$

Infrared spectra are presented confirming the structure of the diphenyl esters of butene-g-ylphosphonic-1 acid and x-phenylvinylphosphonic acid. The paramagnetic resonance spectrum is presented for the diphenyl ester of propenylphosphonous-2 acid.

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Organophosphorous Compounds

USSR

UDC 546.322'26.118.07

KORMACHEV, V. V., TSIVUNIN, V. S., ZARETSKIY, YA. S., and KOREN', N. A.

"A Method of Making Dialkyl (Monothiodialkyl) Esters of β-Methyl-γ-Chloropropenylphosphonic Acid"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 21, Jul71, Author's Certificate No 308013, Division C, filed 27 Dec 68, published 1 Jul 71, p 79

Translation: This Author's Certificate introduces a method of making dialkyl (monothiodialkyl) esters of β-methyl-γ-chloropropenylphosphonic acid. As a distinguishing feature of the patent, β-methyl-γ-chloropropenylphosphonic (thiophosphonic) acid chlorides are interacted with alcohols in the presence of tertiary amines in an inert organic solvent with subsequent isolation of the goal product by conventional methods.

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USSR

UDC 547.26'118

TSIVUNIN, V. S., KRUTSKIY, L. N., ERNAZAROV, and KAMAY, G. Kh.

"The Reaction of Diethylamidoethylphosphonous Acid Chlorides and Ethyldichlorophosphine, With the Orthoformic Ester and Acetic Aldehyde Diethyl Acetal"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2560-2563

Abstract: For a comparison of the electrophilic properties of the diethylamidoethylphosphonous acid chloride and those of the halides of trivalent phosphorus, the authors studied the above reaction.

It was found that ethyldichlorophosphine reacts vigorously with the orthoformic ester, to form the ethyl ester of ethyldiethoxymethylphosphinic acid, and with the diethyl acetal of acetaldehyde to form (depending on the ratio of reagents) the ethyl ester or the acid chloride of ethyl-1-ethoxyethylphosphinic acid. Alcohols react with the latter to produce the esters of ethyl-1-ethoxyethylphosphinic acid, and also the acid itself. It was also found that the diethylamidoethylphosphinic acid chloride, as distinct from ethyldichlorophosphine, reacts with the orthoformic ester, but is practically inactive with respect to the diacetal of acetaldehyde.

1/1

USSR

UDC 547.341

FRIDLAND, S. V., TSIVUNIN, V. S., FRIDLAND, D. V., KAMAY, G. KH. (DECEASED), Kazan' Chemical-Technological Institute imeni S. M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Reactions of α-Haloesters With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1993-1995

Abstract: Reaction of α-chloroethylbutyl ether with PCl_5 is exothermic, leading to a white complex which upon treatment with SO_2 gives butoxyvinylphosphonic acid dichloride. When PCl_5 reacts with α-chloromethylalkylethers, no phosphorylated products are obtained: only chlorinated ethers. Reaction of α-chloroethylvinyl ether with PCl_5 yields 2-chloro-2-(1-chloroethoxy)-ethylphosphonic acid dichloride (I), which can be obtained, however, only when distillation of the product is carried out at 6 mm pressure or below; at higher temperatures hydrogen chloride is split off. One molecule of HCl is also split off upon treatment with one mole of

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USSR

FRIDLAND, S. V., et al, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1993-1995

triethylamine. Chlorine atoms in (I) are quite labile and can easily be replaced by ethoxy groups when reacted with sodium ethoxide. V. KATAYEVA also participated in the experiments.

2/2

USSR

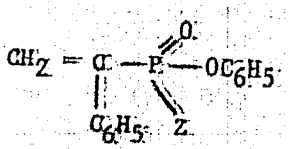
UDC 547.341.26.118.07

NURTDINOV, S. Kh., TSIVUNIN, V. S., NURTDINOV, G. Kh., and KAMAY, G. Kh.,
Kazan' Institute of Chemical Technology

"A Method of Making Derivatives of α-Phenylvinylphosphonic Acid"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289094, division C, filed 10 Nov 69, published 8 Dec 70, p 77

Translation: This Author's Certificate introduces: 1. A method of making derivatives of α-phenylvinylphosphonic acid of the general formula



where Z is Cl or C_6H_5O. As a distinguishing feature of the patent, phenyldichlorophosphite or diphenylchlorophosphite is interacted with acetophenone in the presence of heat in a closed system with subsequent isolation of the goal product by conventional methods. 2. A modification of this method

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USSR

NURTDINOV, S. Kh., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289094, division C, filed 10 Nov 69, published 8 Dec 70, p 77

distinguished by the fact that heating is done to 150-170°C.

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USSR

UDC 547.341

KORMACHEV, V. V., TSIVUNIN, V. S., KOREN', N. A., Kazan' Chemical-Technological Institute imeni S. M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Reaction of Phosphorus Pentachloride With Ethylmethallyl Ether"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1711-1713

Abstract: Reaction of phosphorus pentachloride with ethylmethallyl
ether in benzene at 0 - -5° gives a complex which may be decomposed
with SO_2 to yield a dichloroanhydride of β-methyl-γ-chloro-γ
-ethoxypropenylphosphonic acid (I), b.p. 115-117°/2mm, d_4^{20} 1.3117,
n_D^{20} 1.4862. When (I) is reacted with sodium alkoxides, dialkoxy-
phosphone-β-methylethylalkylacryl acetals are obtained. Heating
these acetals for 50 hours at 100° with isoprene, an equimolar
amount of water, traces of hydrochloric acid, and hydroquinone does
not yield any products of the expected diene synthesis, only
β-dialkoxyphosphane-α-methylacroleines. Reaction of the latter
products with 2,4-dinitrophenylhydrazine gives the corresponding
1/1 hydrazones.

USSR

UDC 547.341

KORMACHEV, V. V., TSIVUNIN, V. S., KOREN', N. A., Kazan' Chemical-Technological Institute imeni S. M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Reaction of Phosphorus Pentachloride With Metallyl Chloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1989-1992

Abstract: Phosphorus pentachloride reacts in the cold with metallyl chloride forming a complex, which on treatment with SO_2 or H_2S converts to dichloroanhydrides of β-methyl-γ-chloropropenylphosphonic (I) or thiophosphonic acids. Chlorination of (I) gives a dichloroanhydride of β-methyl-α, γ-dichloropropenylphosphonic acid. The preceding reactions give several esters of β-methyl-γ-chloropropenylphosphonic and thiophosphonic acids, the physical properties of which are tabulated. Dialkyl ethers and the dichloroanhydride of (I) react with sodium alkoxide forming dialkyl esters of β-methyl-γ-alkoxypropenylphosphonic acids. Reacting the dialkyl esters of (I) with diethylamine give dialkyl esters of β-methyl-γ-diethylaminopropenylphosphonic acid.

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1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--REACTION OF N,N,DIETHYLETHYLPHOSPHONAMIDIC CHLORIDE WITH CHLOROMETHYL ALKYL ETHERS -U-

AUTHOR-(03)-TSIVUNIN, V.S., KRUTSKIY, L.N., KAMAY, G.KH.

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COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 597-603

7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, AMINE DERIVATIVE, CHLORINATED ORGANIC COMPOUND, ALIPHATIC ETHER, ACTIVATION ENERGY, ENTROPY, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1140 STEP NO--UR/0079/70/040/003/0597/0603

CIRC ACCESSION NO--AP0128564

UNCLASSIFIED

2/2 033

CIRC ACCESSION NO--AP0128564 UNCLASSIFIED PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 26 G ETP(NET SUB2)CL WITH
12.4 G CLCH SUB2 OME 8 HR AT 60-70DEGREES GAVE AN ORANGE MASS, WHICH
TREATED WITH SO SUB2 THEN HCL GAVE 55PERCENT MEOCH SUB2 P(O)ETCL (I), B
SUB14 105-7DEGREES, N PRIME20 SUB3 1.4710, D PRIME20 1.2140. I AND MEOH
MIXED AT 10DEGREES AND WARMED TO ROOM TEMP. FINALLY IN VACUO GAVE
51PERCENT MEOCH SUB2 P(O) (OME)ET B SUB14 115-16DEGREES, 1.4508, 1.1152.
SIMILAR REACTION WITH ET SUB2 NH GAVE MEOCH SUB2 P(O) (NET SUBW)ET
70PERCENT, B SUB16 137-80, 1.4637, 1.0119. I (8 G) TREATED WITH 0.41 ML
H SUB2 O IN ET SUB2 O WITH COOLING, THEN 1 HR AT 100-20DEGREES GAVE 55
PERCENT (MEOCH SUB2 P(O)ET) SUB2 O, B SUB1 155-6DEGREES, 1.4680, 1.1762.
I AND H SUB2 O IN EXCESS GAVE MEOCH SUB2 P(O) (OH)ET, B SUB3
184-5DEGREES, 1.4558, 1.1639. SIMILARLY WERE PREPD. SHOWN ON
MICROFICHE. THE RATE CONST. FOR REACTION OF ETP(NET SUB2)CL WITH BUOCH
SUB2 CL AT 20DEGREES WAS DETD. BY CONDUCTOMETRIC STUDY TO BE 5.16 TIMES
10 PRIME NEGATIVE3 L. MOLE PRIME NEAGIVE1 MIN PRIME NEGATIVE1. THE
ACTIVATION ENERGY OF THE REACTION WAS 10.8 KCAL-MOLE AND ACTIVATION
ENTROPY OF MINUES 32.2 E.U. THE REDUCED RATE OF REACTION IN THIS CASE
RELATIVE TO THAT OF ET SUB2 PCL IS ASCRIBED TO LOWERED NUCLEOPHILIC
NATURE OF P WHEN ET IS REPLACED BY ET SUB2 N GROUP.

UNCLASSIFIED

USSR

UDC 547.361.341.297.07

KORMACHEV, V. V., TSIVUNIN, V. S., ZARETSKIY, YA. S., and KOREN',N.A.

"A Method of Synthesizing β-Methyl-γ-chloropropenylphosphonyl (Thiophosphonyl)Dichlorides"

Moscow, Otkryia, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 271517, filed 27 Dec 68, p 24

Abstract: This Author's Certificate introduces a method of synthesizing β-methyl-γ-chloropropenylphosphonyl (thiophosphonyl) dichlorides. As a distinguishing feature of the patent, phosphorus pentachloride is interacted with methallyl chloride with subsequent decomposition of the resultant adduct by sulfur dioxide or hydrogen sulfide with cooling and isolation of the goal product by conventional methods. 2. The method described in (1) is distinguished by cooling to -5 - 0°C.

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USSR

UDC: 547.241

NURTDINOV, S. Kh., TSIVUNIN, V. S., KHAYRULLIN, R. S., KASHTANOVA, V. G., and KAMAY, G. Kh., Kazan' Institute of Chemical Technology

"Reaction of Ethyl- and Phenyldichlorophosphine with Acetone"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 36-40

Abstract: Liquid heterocyclic compounds, 2-keto-2-ethyl-(or phenyl-)-3,3,5-trimethyl-1-oxa-2,4-phospholenes (I), were obtained in 67-70% yields by heating for 10-20 hours in a sealed tube mixtures of ethyl- or phenyldichlorophosphine with acetone at 75-80° or 100°, respectively. Physical constants of I are given. The structure of I was determined from IR and NMR spectra. Heating I with methanol at 70-150° in a sealed tube gave ethyl- or phenyl 1,1-dimethyl-3-ketobutylphosphinites (II) in 49-73% yields. All II compounds but one are liquids. Similarly heating I at 110° with water slightly acidified with hydrochloric acid gave 52-54% yields of ethyl- or phenyl-1,1-dimethyl-3-ketobutylphosphinic acids, crystalline solids with melting point 112-13° and 121°, respectively. The structures of the phenylketobutylphosphinic acid, I and II were determined from IR spectra.

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USSR

UDC 547.241

TSIVUNIN, V. S., KRUTSKII, L. N., KAMAI, G. Kh.

"Reaction of Dietylamide of Ethylphosphonous Acid Chloride with Acetyl Chloride and Benzoyl Chloride"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1421-1422

Abstract: Diethylamide of ethylphosphonous acid chloride reacted with acetyl or benzoyl chloride to yield ethyldichlorophosphine and the diethylamide of the corresponding carboxylic acid. Whereas in the reaction with acetyl chloride some heat is evolved, no such effect was noted in the reaction with benzoyl chloride.

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USSR

UDC 546.181.1+547.391.1.3

TSIVUNIN, V. S., D'YAKONOVA, N. I., Kazan' Veterinary Institute imeni N. E. Bauman, Kazan, Ministry of Agriculture USSR

"Reaction of Some Phosphorus Acids With α,β-Unsaturated Acyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1995-2001

Abstract: It was proposed that in the reactions of α,β-unsaturated acids with trivalent phosphorus chlorides the latter act as electrophilic agents, the reaction starting by a donor-acceptor interaction of phosphorus (acceptor) with electron pairs of oxygen atoms of the carboxyl functional group (donor). The α,β-unsaturated acyl halide and phosphorus acid react by nucleophilic addition to give the final product. To prove some of the missing links in this mechanism, reactions of α,β-unsaturated acyl halides with dialkyl-phosphorous, -phosphonous, and -phosphinous acids were carried out. It was shown that the above phosphorus acids add easily to the double bond of the α,β-unsaturated acyl chlorides forming acyl chlorides of β-phosphorylated acids, which undergo

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USSR

TSIVUNIN, V. S., et al, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1995-2001

further reactions. The reaction rate increases with transition from dialkylphosphorous to dialkylphosphinous acids. The reactions studied support the idea that phosphorus trichlorides react with α,β-unsaturated acids through the formation stage of phosphorus acid and α,β-unsaturated acyl chloride followed by their interaction.

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USSR

UDC: 547.241

NURTDINOV, S. Kh., KHAYRULLIN, R. S., TSIVUNIN, V. S., ZIKOVA, T. V., NURTDINOV, G. Kh., KAMAY, G. Kh. (deceased), Kazan' Institute of Chemical Technology imeni S. M. Kirov

"On the Interaction of Chlorides of Trivalent Phosphorus With Saturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2377-2382

Abstract: The authors studied reactions of phosphorus trichloride, ethyldichlorophosphine and phenyldichlorophosphine with acetone, methylethylketone, acetophenone and methylbutylketone. It was found that all of these components react smoothly with heating to 90-170°C for 16-20 hours. The reaction products in most instances were purified by vacuum distillation, resulting in colorless liquids with a slight characteristic odor. In the case of acetophenone, the products were isolated by recrystallization from alcohols. Infrared and paramagnetic resonance spectroscopic studies were used to determine the reaction mechanism for chlorides of trivalent phosphorus with ketones. Some of the properties of the resultant cyclic oxaphospholenes are tabulated.

1/1

USSR

UDC: 632.95

TSIVUNIN, V. S., KRUTSKIY, L. N., and KAMAY, G. Kh., Kazan' Chemical-Technological Institute im. S. M. Kirov

"A Method for Preparing Alkylalkoxyalkylphosphinic Acid Esters"

USSR Author's Certificate No 258307, filed 16 Dec 68, published 28 Apr 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N639 P by T. Ya. Ogibina)

Translation: A method is suggested for preparing physiologically active ethylethoxymethylphosphinic acid esters (I). A mixture of 0.12 mole of diethylamide chloride of ethylphosphonous acid and 0.12 mole of chloromethylmethyl ether is heated to 50 to 60° for 7 hours and then decomposed with a weak current of SO_2. 100 ml of ether is added, HCl (gas) passed through, and after about 16 hours 11.6 g of the acid chloride of I (II) removed, $C_5H_{12}ClO_2P$, boiling point 91-93°, $n^{20}D$ 1.14642, d_4^{20} 1.1513. 0.1 mole of MeOH is added to a solution of 0.053 mole of II in 40 ml of C_6H_6 at 20°. The mixture is kept at about 20° for 20 min, producing 4.65 g of I ester, $C_6H_{15}O_3P$, boiling point 96-7°/3, $n^{20}D$ 1.4385, d_4^{20} 1.0524. I ethyl ester, $C_7H_{17}O_3P$, is prepared in a similar fashion, boiling point 92-3°/2, $n^{20}D$ 1.4364, d_4^{20} 1.0232.

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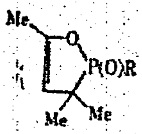
Acc. Nr: AP0053349

Abstracting Service:
CHEMICAL ABST. 5/20

Ref. Code:
UR0079

111569y **Reaction of ethyl- and phenyldichlorophosphine with acetone.** Nurtdinov, S. Kh.; Tsivunin, V. S.; Khairullin, R. S.; Kashtanova, V. G.; Kamai, G. (Kazan. Khim.-Tekhnol. Inst., Kazan, USSR). *Zh. Obshch. Khim.* 1970, 40(1), 36-40


(I)

(Russ). Heating in a sealed tube 22 g $EtPCl_2$ and 19.2 g Me_2CO 10 hr at 75-80° gave 67% I (R = Et) $b_{0.1}$ 80-2°, d^{20} 1.0630, n_D^{20} 1.4768. $PhPCl_2$ similarly gave in 20 hr at 100° 70% I (R = Ph), $b_{0.03}$ 136°, 1.0310, 1.5415. Heating I with R^1OH in a sealed tube at 100-50° several hr gave $RP(OR^1)CMe_2CH_2Ac$ (R and R^1 shown): Et, Me, 73%, b_3 112-13°, 1.0670, 1.4645; Ph, Me, 50%, $b_{0.4}$ 149-52°, 1.1260, 1.5255; Et, Et, 63%, b_3 128-30°, 1.0400, 1.4610; Et, Pr, 57%, b_3 131-3°, 1.0300, 1.4640; Et, iso-Pr, 82%, m. 82-4°; Et, Bu, 49%, $b_{0.08}$ 96-8°, 1.0150, 1.4631; Et, C_5H_{11}, 51%, $b_{0.08}$ 122-4°, 0.9837, 1.4502; Ph, Et, 67%, $b_{0.4}$ 154-6°, 1.1250, 1.5235 (2,4-dinitrophenylhydrazone

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REEL/FRAME
19830371

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AP0053349

m. 213°); Ph, Pr, 70.8%, $b_{0.1}$ 141–3°, 1.0870, 1.5137 (2,4-
dinitrophenylhydrazone m. 203°); Ph, iso-Pr, 56.9%, $b_{0.1}$ 131–
3°, 1.0968, 1.5150; Ph, Bu, 67.5%, $b_{0.11}$ 146–8°, 1.0697, 1.5110;
Ph, iso-Bu, 52.3%, $b_{0.15}$ 158–60°, 1.0741, 1.5115; Ph, C_5H_{11},
69%, $b_{0.4}$ 166–70°, 1.0613, 1.5068; Ph, iso-C_5H_{11}, 71%, $b_{0.08}$
138–40°, 1.0630, 1.5075. Heating I with H_2O slightly acidified
with HCl 8 hr at 110° gave 52–4% $AcCH_2CMe_2P(O)(OH)R$:
Et, m. 112–13°; Ph, m. 121° (aniline salt, m. 124°).

G. M. Kosolapoff

7/7

19830372

USSR

UDC: 632.95

KORMACHEV, V. V., TSIVUNIN, V. S., ZARETSKIY, Ya. S., KOREN', N. A.

"A Method of Synthesizing Dialkyl (Monothiodialkyl) Esters of β-Methyl-γ-chloropropenylphosphonic Acid"

USSR Author's Certificate No 308013, filed 27 Dec 68, published 7 Sep 71 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15N495P)

Translation: Compounds of the general formula $RO(RX)P(O)CH{=}C(Me)CH_2Cl$ (I) (R = alkyl, X=O, S) with insecticidal activity and low toxicity for warm-blooded animals are synthesized by reacting β-methyl-γ-chloropropenylphosphonic (thiophosphonic) acid chlorides with alcohols in the presence of tertiary amines. Nineteen and eight tenths grams of $Cl_2P(O)CH{=}C(Me)CH_2Cl$ is added with cooling to 7.9 grams of absolute ethanol, 13.6 grams of pyridine and 75 ml of absolute ether. The liberated pyridine hydrochloride is filtered, the filtrate is vacuum distilled, and 11.8 grams of I is isolated (R = Et, X = O), yield 55%, melting point 129-31°/3, $n^{20}D$ 1.4622, d_4^{20} 1.1954. Other compounds of general formula I are obtained analogously (given are R, X, yield in %, melting point in °C/mm, $n^{20}D$ and d_4^{20}): n-Pr, O, 46.5, 140-1/4, 1.4611, 1.1289; n-Bu, O, 43.9, 140-2/1.0, 1.4629, 1.0706; Et, S, 40.0, 114-6/0.5, 1.5192, 1.2461; n-Pr, S, 41.2, 124-6/0.5, 1.5180, 1.1917; n-Bu, S, 39.8, 136-7/0.3, 1.5129, 1.1501; n-C_5H_{11}, S, 4.12, 157-9/0.5, 1.4995, 1.0949.

USSR

UDC: 658.562.012.7

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BARYAKH, B. M., GRUNBERG, G. Ya., LERNER, I. U., SLOTSNIK, Ya. Yu., TSIV'YAN, B. Kh., [redacted]
CHERNKOV, V. V.

"Device for Centralized Testing of Parameters of an Object"

USSR Author's Certificate Number 308433, filed 16/03/70, published 12/08/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A371 P)

Translation: A device is suggested for centralized testing of the parameters of an object, containing a unit for selection of parameters, a servo system, a rotation-digital converter, an autocompensator with a servo system of the autocompensator, a unit for checking the accuracy of the servo system, a defect indicator, a counter unit, and a recorder. In order to increase the speed and reliability of testing, the device contains a threshold unit connected to the input of the rotation-digital converter and a self-testing unit in the servo system, and the output of the threshold unit is connected to one input of the self-testing unit of the servo system, the second input of which is connected to an additional output of the unit for selection of parameters; the output of the counting control is connected

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RYAKH, B. M., GRANBERG, G. Ya., LERNER, I. U., SLOTSNIK, Ya. Yu., TSIV'YAN, B. Kh.,
HERNKOV, V. V., USSR Author's Certificate Number 308433, filed 16/03/70,
published 12/08/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika
i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A371 P)

to the input of the counting unit, the output of the false balance checking unit is connected to the controlling input of the servo system balancing element, while the output of the signalling unit is connected to the additional inputs of the defect indicator and recorder. 2 figures.

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1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--MECHANICAL PROPERTIES OF NUCLEUS PULPOSUS OF THE LUMBAR INVERVERTEBRAL DISCS BASED ON DATA OF BARODISCOMETRY IN EXPERIMENT -U-

AUTHOR-(04)-TSIVYAN, YA.L., RAYKHINSHTEYN, V.KH., MOSOLOVA, M.D., OVSEYCHIK, YA.G.

COUNTRY OF INFO--USSR

SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 6, PP 55-60

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--BONE DISEASE, ORTHOPEDIC SURGERY, MEDICAL TRAINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0915 STEP NO--UR/9115/70/000/006/0055/0060

CIRC ACCESSION NO--AP0129980

UNCLASSIFIED

2/2 022
CIRC ACCESSION NO--AP0129980 UNCLASSIFIED PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THIS PAPER THE RESPONSE OF THE

INTERVERTEBRAL LUMBAR DISCS TO EXPERIMENTAL VERTICAL COMPRESSION IS ELUCIDATED. THE OBJECT OF THE STUDY WAS CADAVERIC MATERIAL. VARIOUSLY TREATED PREPARATIONS OF THE HUMAN LUMBAR SPINE WERE SUBMITTED TO COMPRESSING LOAD IN A SPECIALLY CONSTRUCTED APPARATUS. BARODISCOMETRY, PRESSURE IN NUCLEUS PULPOSUS OF THE DISC UNDER STATIC CONDITIONS WAS CHOSEN AS BASIC TEST. INFORMATION ABOUT THE INTRADICAL PRESSURE WAS OBTAINED WITH AID OF A SPECIAL DEVICE, NEEDLE PROBE OF ORIGINAL CONSTRUCTION. DISCS OF VARIOUS DEGREE OF DEGENERATION HAVE BEEN INVESTIGATED. ON BASIS OF THE EXPERIMENTS THE AUTHORS PROPOSE A CONCEPTION OF THE AMORTIZATION FUNCTIONS OF LUMBAR INTERVERTEBRAL DISCS.

FACILITY: KLINIKI TRAVMATOLOGII I ORTOPEDII I OTDELA FIZIOLOGII NOVOSIBIRSKOGO INSTITUTA TRAVMATOLOGII I ORTOPEDII.

UNCLASSIFIED

USSR

UDC: 533.09.07

AUZINYA, L. K., ZAKE, M. V., MEL'NIKOV, V. K., and TSIYELENS, U. A.

"Phenomena of Emission from a Titanium Surface in Nonstationary Heating by an Argon-Air Current of a Low-Temperature Plasma"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR -- Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 4, 1973, pp 53-62

Abstract: Earlier papers by the authors of the present article (e.g., M. V. Zake, et al, Izv. AN LatvSSR, ser. fiz. i tekhn. nauk, No 2, 1970, p 81) have established that the electrical conductivity and radiation characteristics of high-temperature, gas-dispersed currents with titanium particles are determined chiefly by the phase and chemical transformations of the particles. Since there is a need for more detailed study of the mechanisms involved, the processes are studied in the present paper on stationary models under low-temperature plasma conditions. The results are given of a combined study of electron emission and radiation from the surface of titanium plates under nonstationary heating by an argon-air current of a low-temperature plasma. For these experiments, a special measuring device was prepared, consisting basically of plane-parallel electrodes, with the titanium plate as cathode and a

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1.

USSR

UDC: 533.09.07

AUZINYA, L. K., et al, Izvestiya Akademii Nauk Latviyskoy SSR -- Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 4, 1973, pp 53-62

water-cooled copper plate as anode. Curves are plotted for the change in intensity of radiation from the surface of the titanium as a function of the heating time and of the temperature, for the changes in emission current as a function of the temperature, and for the work function of the surface as a function of the temperature. The results of the work function determination show that the kinetic emission at various stages of surface oxide formation must not be neglected in computations of the electrical characteristics of sputtering currents with metal particles.

2/2

USSR

3

UDC: 533.09.07

AUZINYA, L. K., LIYEPINYA, V. E., ZAKE, M. V., MEL'NIKOV, V. K., MEL'NIKOV, Vl. K., UNGURS, I. A., and TSIYELENS, U. A.

"Method of Complex Experimental Investigations of Thermophysical Processes in a Chemically Active Coaxial Plasma Jet With Ti Particles"

Riga, Izvestiya Akademii nauk Latviyskoy SSR, No 2, 1972, pp 60-68

Abstract: Very little attention is now being given to low-temperature plasma jets with dispersed particles. Consequently, the purpose of this paper is to give the results of complex experimental investigations into the coaxial jet of a low-temperature argon plasma with dispersed particles of Ti. Measurements are made of the gas-dynamic parameters of a single-phase jet, variations in the chemical composition of the dispersed particles from the characteristics of the two-phased jet are studied, the spectral and integral characteristics of energy losses through radiation are obtained, and the electrical conductivity of the jet flux is investigated. The experimental equipment, a diagram of which is given, consists of arc heaters, a coaxial nozzle, a device for introducing powders into the jet, and measuring instruments. Of the features of these experiments,

AUZINYA, L. K., et al, *Izvestiya Akademii nauk Latviyskoy SSR*, No 4, 1972, pp 60-63 UDC: 533.09.07

the most interesting is the chemical conversion of the Ti into compounds containing large quantities of nitrogen in the form of nitrides and oxynitrides.

2/2

USSR

UDC 547.397+595.7

DRABKINA, A. A., YEFIMOVA, O. V., [redacted] GAMPER, N. M., and PRIDANTSEVA, Ye. A., Institute of Chemical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy; All-Union Institute of Plant Protection

"Compounds Which Simulate the Effect of the Juvenile Insect Hormone. III. Synthesis of 3,11-Dimethyl-11-chlcrodecen-2-oic Acid Ethyl Ester"

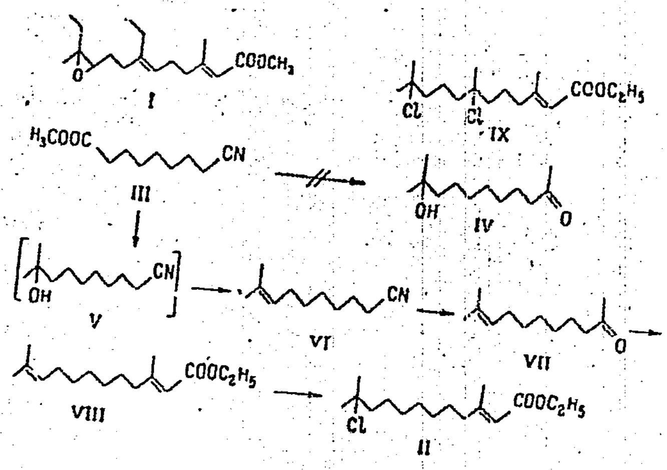
Leningrad, Zhurnal Obshchey Khimii, Vol 42(103, No 2, Feb 72, pp 457-459

Abstract: 3-11-Dimethyl-11-chlorododecen-2-oic acid ethyl ester (II) was synthesized for biological tests. Compound (II) shows the groups typical of the active analogs of insect juvenile hormone of (I).

1/3

USSR

DRABKINA, A. A., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 457-459



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USSR

DRABKINA, A. A., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72
pp 457-459

The synthesis is based on methyl 8-cyanooctanoate (III). It was assumed at first that ester (III) could be converted to hydroxy ketone (IV) with excess methylmagnesium iodide. However, even a reagent ratio of 1:10 failed to give the desired result. Careful selection of reaction conditions showed that ester (III) reacts with three moles of methylmagnesium iodide to form hydroxy nitrile (V) which is converted to unsaturated nitrile (VI) after dehydration without filtering. Reaction of (VI) with four moles of methylmagnesium iodide yields ketone (VII) which is converted to the diene ester (VIII) by the Whittig reaction. Compound (II) is obtained by bubbling hydrogen chloride through an alcohol solution of diene ester (VIII). Tests on mosquito larvae showed that (II) is as active physiologically as compound (IX), which is called "synthetic juvenile hormone."

3/3

Nitrogen Compounds

4

USSR

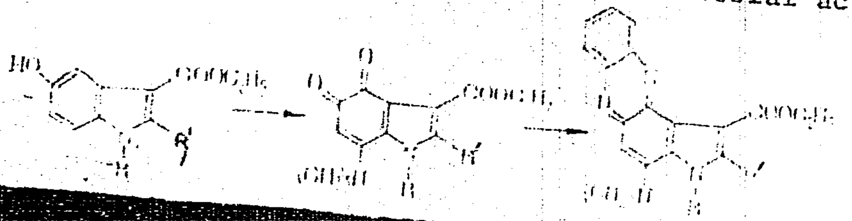
UDC 615.28:547.5677.012

LUK'YANOV, A. V., RUDZIT, E. A., ALESHINA, V. A., VORONIN, V. G., RADKEVICH, T. P., KULIKOVA, D. A., LISITSA, L. I., and TSIZIN, YU. S., All-Union Scientific Research Chemics Pharmaceutical Institute imeni Sergo Ordzhonikidze, Moscow, Ministry of Health USSR

"Study of Heterocyclic Quinones. XV. Synthesis and Antimicrobial Action of Substituted Indolequinones-4,5"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970,

Abstract: In earlier reports the authors showed that several heterocyclic quinones can be obtained by oxidation of the corresponding phenols with oxygen in the presence of a Cu^{2+}-secondary amine complex. The present report describes the use of this method for oxidation of 5-oxyindoles (I) and the study of the structures of the resulting compoinds (II) and their antimicrobial action.



USSR

LUK'YANOV, A. V., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 16-20

R a) CH_3 b) C_2H_5 c) $-CH_2C_6H_5$ d) $-C_6H_5$ e) $-CH_2OC_6H_5$
f) $n-C_2H_5OC_6H_4$ R' CH_3 (a-f) g) R R' C_6H_5

It was established that all compounds tested are inactive toward tuberculosis bacillus, gram-negative bacteria, and fungi. Of correlations existing between structure and action, the following were noteworthy: 1) all tested 5-oxyderivatives of 2-methyl(or phenyl)-3-carboethoxyindole (Ia-I) do not suppress bacterial growth. 2) Antibacterial activity toward gram-positive microorganisms is exhibited by 2-methyl-3-carboethoxy-7-piperdinoindolequinones-4,5 containing an aryl substituent at N_1 (IIb-IIf). 3) Phenazine derivatives (IIIa-IIIf) of o-quinones (IIa-IIf) do not exhibit antibacterial action. Results of this study show the value of searching for new antibacterial preparations among the new series of o-quinones of 2-methyl-3-carboethoxy-7-piperidinoindole.

2/2

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF REPELLENTS. AMIDES OF O ALKYLPHOSPHORIC ACIDS -U-
AUTHOR-(03)-LUCHKOVSKAYA, O.N., BATAYEV, P.S., TSIZIN, YU.S.

7

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 644-6

DATE PUBLISHED---------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGANIC SYNTHESIS, INSECT REPELLENT, ALIPHATIC PHOSPHORUS COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0726 STEP NO--UR/0079/70/040/003/0644/0646

CIRC ACCESSION NO--AP0126438

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0126438 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF (ROSUB2 POCL WITH 3
EQUIVS. AMINE IN ET SUB2 O OR C SUB6 H SUB6 GAVE: SHOWN ON MICROFICHE.
FACILITY: INST. MED. PARAZITOL. TROP. MED. IM. MARTSINOVSKOGO,
MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--HETEROCYCLIC QUINONES. ANIMATION OF 6,HYDROXYBENZOTHIAZOLE DURING OXIDATION -U-

AUTHOR-(03)-LUKYANOV, A.V., VORONIN, V.G., TSIZIN, YU.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 238-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC BASE COMPOUND, QUINONE, HYDROXYL RADICAL, THIAZOLE, OXIDATION, AMINE, MORPHOLINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1060

CIRC ACCESSION NO--AP0128487 STEP NO--UR/0063/70/015/002/0238/0239

UNCLASSIFIED

2/2 013
UNCLASSIFIED
PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128487

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AGITATING 0.5 G CU(OAC) SUB2 IN 100 ML. MEOH AND 0.4 MOLE R SUB2 NH WITH 15.1 G APPROPRIATE 6,HYDROXYBENZOTHIAZOLE IN O ATM. AT 20DEGREES RESULTED IN AN EXOTHERMIC REACTION (TO 35-40DEGREES) WHICH TOOK UP SIMILAR TO 4.5 L. O AND GAVE THE FOLLOWING I (R SHOWN): PIPERIDINO, DECOMPD. 169.5-70DEGREES; NME SUB2, DECOMPD. 161.5-2.5DEGREES; AND MORPHOLINO, DECOMPD. 132-3.5DEGREES. IF THE STARTING BENZOTHIAZOLE CONTAINS AN ARYL GROUP IN THE 2 POSITION, THE ADDN. OF SECONDARY AMINES FAILED, POSSIBLY OWING TO STERIC FACTORS. THE REACTION OF ADDN. PUTATIVELY PASSES THROUGH II AS AN INTERMEDIATE. FACILITY: VSES. NAUCH. ISSLED. KHIM. FARM. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

TSKHADAYA, B.A.

JPRS 60551

29 November 1973

(7)

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UDC 533.9.07

ACCELERATION OF IONS BY A RELATIVISTIC ELECTRON BEAM

[Article by A. A. Plyutto, K. V. Suladze, S. M. Temchin, G. P. Mkheidze, Ye. D. Korop, B. A. Tskhadaya and I. V. Golovin; Moscow, Zhurnal Tekhnicheskoy Fiziki, Russian, Vol. 43, No. 8, 1973, signed to press 22 June 1972, pp. 1627 - 1631]

Abstract

The effect of ion acceleration by a relativistic electron beam was investigated. Protons were accelerated to 6 - 7 million electron volts for an energy of an electron beam of approximately one million electron volts. The beam composition and its energy distribution were studied. It was demonstrated that the energy of protons accelerated by electrons rises more rapidly than linearly with an increase in the accelerating voltage in the 0.3 - 1 million electron volts range.

The effect of ion acceleration in an electron beam was observed initially when obtaining nonrelativistic electron beams [1]. Protons and ions of carbon with maximum energies of 4 - 5 and 10 - 20 Mev were recorded in the following experiments for an average of 200 - 300 kev electron energy [2]. A linear rise in the energy of ions with an increase in the energy of electrons was observed in the range of 10 - 200 kilovolt accelerating voltages under optimal conditions for ion acceleration. This opened up the possibility for creating an electron jet ion accelerator at 10 - 100 Mev using 1 - 2 Mev relativistic electron beams. Some investigations in this direction were conducted using high current electron resonator accelerators.

Arrangement of Experiment

Ion acceleration by means of electrons was done by using a variable accelerating voltage oscillating with a frequency of 6.3 megaHz and an initial amplitude of 0.2 - 1 megavolts applied to the accelerating gap. The high

[I - USSR - L]

USSR

SULADZE, K. V.; [redacted] A.; PLYUTTO, A. A. (Sukhumi Physicotechnical Institute)

"Peculiarities of Intensive Electron Beam Formation in a Bounded Plasma"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; June, 1971; pp 992-4

ABSTRACT: Peculiarities of the formation of strong-current, pulsed electron beams were studied by a method of the preliminary filling of an accelerating gap with plasma. A distinctive feature of the method is that the plasma-filled gap has a high conductivity which allows currents of $10^4 - 10^5$ amps with a duration of $10^{-7} - 10^{-8}$ sec to be attained in the gap. After a certain critical value of the current has been attained in the gap, the ohmic resistance of the gap rises, resulting in a sharp decrease in the current and a sharp increase in the potential difference across the gap. In this case the plasma is broken into anodic and cathodic with corresponding potentials.

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USSR

SULADZE, K. V., et al., Ukrainskiy Fizicheskiy Zhurnal, Jun 71, pp 992-994

Probe measurements show that all of the drop in voltage at the stage at which the current sharply decreases is concentrated in the plasma gap. It is at this stage that the electron beam is formed. The critical current value depends on the plasma concentration, and at a concentration of 10^{13} cm^{-3} it reached $5 \cdot 10^4$ amps. At the same time, the beam current reached $2 \cdot 10^4$ amps, the accelerating voltage was 45 kv, and the current pulse duration was $3 \cdot 10^{-7}$ sec.

2/2

USSR

UDC 621.396.96:621.371

TSKHAKAYA, K. G. and SHUPYATSKIY, A. B.

"Polarization Characteristics of a Signal from Meteorological Formations at Various Dispersion Angles"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 366-372 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10G9)

Translation: The possibilities of using the polarization characteristics of a radar signal for detecting heavy particles in the atmosphere and investigating their spectral distribution are considered. It is shown that the principal characteristic of the signal permitting a judgment of the dimensions of particles is the depolarization coefficient. Two illustrations, bibliography of three. N. S.

1/1

USSR

UDC 621.396.967:551.501.81

TSKHAKAYA, K. G., SHCHUPYATSKIY, A. B., MORGUNOV, S. P., and MINERVIN, V. Ye.

"Measurements of Signal Depolarization by Meteorological Forms in Bistatic Reception"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 360-365 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10G31)

Translation: The application of bistatic reception to radar investigation of meteorological forms is considered. A method is described for experimentally investigating the signal parameters at various dispersion angles. The measurements were conducted with two radio relay stations separated by 14 km. The technique of synchronizing both stations, of the frequency agreement of the separated transmitter and receiver, and of the coincidence of the space investigated by both stations, is given. Three illustrations, bibliography of one. N. S.

1/1

USSR

UDC: 51:330.115

TSOY, A. Kh., TSKHAY, S. M., DRUZHININ, V. N.

"On Scheduling Excavator Traffic as a Problem of Several Traveling Salesmen"

Tr. In-ta Gorn. dela AN KazSSR (Works of the Institute of Mining, Academy of Sciences of the Kazakh SSR), 1971, 45, pp 9-13 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V536)

Translation: The scheduling of the movements of excavators in quarries is formulated as a problem of several traveling salesmen. Cases with limitations on the length of routes and cycles are considered. Authors' abstract.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STABILITY OF LEAD BASED BINARY ALLOYS IN SULFATE SOLUTION -U-

AUTHOR-(04)-DUNAYEV, YU.D., TSKHE, L.A., BUNDZHE, V.G., KIRYAKOV, G.Z.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 237-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--LEAD ALLOY, TIN ALLOY, BISMUTH ALLOY, SOLID SOLUTION,
CORROSION RATE, ANTIMONY ALLOY, SULFATE, AQUEOUS SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1045

CIRC ACCESSION NO--AP0138067 STEP NO--UR/0365/70/006/002/0237/0239

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CORROSION OF PB-SB, PB-SN, AND PB-BI ALLOYS IN 2N H SUB2 SO SUB4 AT ROOM TEMP. WAS INVESTIGATED. TEH PHASE DIAGRAMS AND DEPENDENCES OF THE INITIAL AND STATIONARY POTENTIAL OF THE ALLOYS ON THEIR COMPN. ARE GIVEN IN FORM OF DIAGRAMS. THE CORROSION PROPERTIES OF MATERIALS DEPEND, TO A GREAT DEGREE, ON THEIR STRUCTURE; THE CORROSION RATE OF HYPEREUTECTIC ALLOYS RAPIDLY INCREASES WITH THE CONCN. OF A 2ND COMPONENT, WHERAS THE HYPOEUTECTIV ONES SHOW LITTLE CORROSION SLIGHTLY DEPENDING ON THE AMT. OF THE 2ND COMPONENT. THE CORROSION RESISTANCE OF THE PB BASED SOLID SOLNS. FOLLOWS THE TAMMANN LAW. FACILITY: INST. KHIM. NAUK., ALMA-ATA, USSR.

UNCLASSIFIED

UNCLASSIFIED

So: SELECTED RESEARCH FACILITIES
PCS-89 SEPT 71

(12)

Biochemistry

SECTION VI

Name: Institute of Biochemistry and Physiology of Microorganisms, Pushchino

Description:

(U) During this quarterly reporting period, five new articles were located from the Institute of Biochemistry and Physiology of Microorganisms at Pushchino. On the basis of these articles, it was possible to identify 13 new personalities with the institute. The personalities, the subjects of the articles, and the dates are given below: All-Biochemistry

Beker, M. Ye.	α-oxoglutaric acid	1969 (65)
Boronin, A. M.	antibiotic production	1970 (66)
Disler, Ye. [illegible]	candida lipolytica	1971 (67)
Kalnin'sh, Z. A.	α-oxoglutaric acid	1969 (65)
Karklin'sh, R. Ya.	α-oxoglutaric acid	1969 (65)
Liyepin'sh, G. K.	α-oxoglutaric acid	1970 (65)
Mindlin, S. Z.	antibiotic production	1970 (66)
Pel'tsmane, I. Zh.	α-oxoglutaric acid	1970 (65)
Rozenfel'd, S. M.	candida lepolytica	1971 (67)
Slava, V. A.	α-oxoglutaric acid	1971 (65)
Tsibonariya, S. M.	α-oxoglutaric acid	1971 (65)
Yelotsun, Yu. [illegible]	α-oxoglutaric acid	1971 (65)
Zarinya, D. B.	α-oxoglutaric acid	1971 (65)

Two of the five new articles were authored by personalities already identified with the Institute of Biochemistry and Physiology of Microorganisms. One of these articles dealt with penicillium brevi compactum (68) and the other with methane oxidizing bacteria (69). Reference 65 was jointly issued from the above institute and the Institute of Microbiology imeni A. Kirkhenshteyn Riga, possibly indicating some joint work between the two facilities.

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UNCLASSIFIED

TSRHOMARIYA, S. M.

3

USSR

UDC 669.74'782'891.018.9

ARSENISHVILI, A. YU., DZHAPARIDZE, N. V., DZIDZISHVILI, R. N., KATAMADZE, N. P., TSKITISHVILI, A. A., CHOLOKAVA, M. V., CHKHENDZE, E. A.

"Mastery of Industrial Preparation of the Silicon-Manganese-Calcium Alloy"

V sb. Marganets. Dobycha, obogashch. i pererabotka (Manganese. Extraction, Beneficiation and Refining -- collection of works), No 3 (28), Tbilisi, 1971, pp 47-59 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G261)

Translation: Results of three series of experiments in making Mn alloy with Si and Ca in 2,500 and 11,150 kilovolt ampere electric furnaces are discussed. The initial charge comprised a mixture of slag obtained when making medium carbon FeMn with quartzite, lime, and coke breeze. The necessary conditions for normal conduct of the alloy-making process are the following: exact weighing of the charge components and observation of the schedule for discharge of the alloy from the electric arc furnace. The following extraction in the alloy was obtained: 91% Mn, 73.38% Si, 32.93% Ca, 41.1% Al, 29.9% Mg, and 54.2% P with an alloy composition of 23.01% Mn, 54.13% Si, 9.7% Ca, 1.58% Al, 0.79% Mg, and 0.015% P. The consumption of electric power per ton of alloy was 13,195 kilowatt-hours. There are 6 tables.

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USSR UDC 669.14.018.44:620.18

SOROKINA, YU. G., and YUGANOVA, S. A. and TSNIITMASH, S. A.

"Kinetics of γ-Phase Particle Growth in Ni-Cr-W-Mo Alloys with Different Al/Ti Ratios"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 8-12

Abstract: The kinetics of the formation and growth of γ-phase particles in Ni-Cr-Al-Ti-W-Mo alloys was investigated and the results compared with available data on similar alloys not containing W and Mo. Tests were conducted on three nickel-based cast alloys with the same chrome, tungsten, and molybdenum content and different aluminum and titanium content. The chemical composition of the alloys is given in a table. The experimental technique and procedure are described. The size, shape, and quantity of phase particles were evaluated by the electron microscope method. The linear dimensions and quantity of phase particles were measured after alloy aging at 750°C with intervals of 100, 1000, and 5000 hours. The growth of γ-phase particle size during the aging process of nickel-based alloys containg W and Mo is described by the same equation which describes the growth in alloys without these elements. The addition of W and Mo increases the quantity of γ-phase particles on the surface unit and decreases their growth rate. At the same duration of aging the quantity of γ-phase particle decreases
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USSR

SOROKINA, YU. G. and YUGANOVA, S. A., Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 8-12

with increasing Al/Ti ratio. An increase in hardness in the aging process at 750° C is observed when the γ-phase particle size does not exceed 2×10^{-6} cm and their quantity on the surface unit is higher than 1×10^{9}. 4 figures, 4 tables, and 2 references.

2/2

USSR

TSOBKALLO, S. O., and PRIVALOV, L. A. UDC 539.67

"A Study of the Effect of Grain Size on Amplitude-Dependent Internal Friction in α-Brass"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 148-152

Abstract: A relationship between the true vibration decrement, the average decrement, and the active stress in a sample is established. Experimental data on internal friction of α-brass were processed on the basis of the formula obtained. The effect of grain size on vibration decrement is investigated. 4 figures.

1/1

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--HEAT TREATMENT OF THICK SHEET STEEL -U-

AUTHOR-(03)-ROSPASIYENKO, V.I., TSODIK, M.N., CHERNYKH, G.N.

COUNTRY OF INFO--USSR

SOURCE--METALLURG, FEB. 1970, (2), 40-43 (IN RUSSIAN)

DATE PUBLISHED----FEB70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MATERIALS

TOPIC TAGS--STEEL SHEET, METAL HEAT TREATMENT, ECONOMICS, CARBON STEEL,
ALLOY STEEL, MECHANICAL STRENGTH, TEMPERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0919

STEP NO--UR/0130/70/000/002/0040/0043

CIRC ACCESSION NO--AP0124580

UNCLASSIFIED

026

CIRC ACCESSION NO--AP0124580 UNCLASSIFIED PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMPROVEMENTS IN THE TECHNOLOGY OF HEAT TREATING C AND ALLOY STEEL ARE DESCRIBED. THESE IMPROVEMENTS LARGELY RELATE TO THE CONSTRUCTION OF NEW CONTINUOUS FURNACES AND AUXILIARY HARDENING EQUIPMENT. SOME FUNDAMENTAL CHANGES IN TEMPERING TECHNIQUES HAVE GREATLY INCREASED THE EFFICIENCY OF THE WHOLE OPERATION. IN ADDITION TO ECONOMIC ADVANCES, THE UTS AND YS OF THE STEEL HAVE BEEN INCREASED BY 25PERCENT.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE PROBLEM CONCERNED WITH THE TIMELY DIAGNOSIS OF CANCER OF THE STOMACH -U-

AUTHOR-(05)-VASILENKO, V.KH., SOKOLOV, L.K., RAPOPORT, S.I., TSODIKOV, G.V., SMOLSKIY, B.G.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 9-20

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, CANCER, RADIOGRAPHY, BIOPSY, DIAGNOSTIC MEDICINE, STOMACH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0915 STEP NO--UR/0497/70/048/003/0009/0020

CIRC ACCESSION NO--AP0126574

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEX EXAMINATION (ROENTGENOLOGICAL, GASTROSCOPY, AIMED GASTROBIOPSY AND CYTOLOGY) PERFORMED IN 475 PATIENTS SUFFERING FROM GASTRIC DISEASES PREOPERATIVELY REVEALED CANCER IN 62 OUT OF 65 CASES. THE AUTHORS REPORT ON 12 CASES OF EARLY PREOPERATIVE RECOGNITION OF CANCER OF THE STOMACH THANKS TO THE USE OF AIMED GASTROBIOPSY AND CYTOLOGY. IT IS DEEMED EXPEDIENT TO INTRODUCE NEW PRINCIPLES IN THE APPROACH TO THE PROBLEM OF RECOGNITION OF EARLY CANCER, IN WHICH DECISIVE SHOULD BE BIOPSY INVESTIGATION OBTAINED DURING AIMED GASTROSCOPY; HOWEVER AT THE SAME TIME CLINICAL DATA IN THE DIAGNOSIS OF EARLY CANCER ARE RARELY PRACTICAL.

FACILITY: VSESOYUZNYY NAUCHNO-ISSLED. INSTITUT GASTROENTEROLOGII, MINISTERSTVA ZDRAVOOKHRANENIYA, SSSR, MOSKVA.

UNCLASSIFIED

USSR

UDC 621.374.32

SHUSHKOV, YE. I., GALUST'YAN, S.G., and TSODIKOV, M.B.

"Multichannel Pulse Counters"

Mnogokanal'nyye schetchiki impul'sov (cf. English above), Leningrad, "Energiya," 1971, 64 pp, ill., 25 k. (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A357K)

Translation: The book considers ways of pulse counting simultaneously over several channels by means of a single electronic counter using an internal storage. An analysis is given of the principal characteristics and parameters of the multichannel counter. Its application in various technical devices is considered; viz., multichannel frequency meters, time-interval indicators, statistical analyzers, monitoring and accounting devices. A description is given of the design and operation of various versions of multichannel counters, and schematic diagrams and calculations are given for the principal components.

USSR UDC 620.193.01:669.29

TSODIKOV, V. V., DANILKIN, V. A., YAKIMENKO, L. M., MALKINA, R. I., and MELESHKINA, YE. P.

"Hydrogenation of Titanium and Platinized Titanium With Cathode Polarization in an Alkaline Medium"

Moscow, Zashchita Metallov, No 4, 1972, pp 446-448.

Abstract: The authors studied the influence of platinum, galvanically deposited on the surface of titanium, the duration of cathode polarization, current density the presence of potassium bichromate in the solution on the quantity of hydrogen absorbed during cathode polarization. The electrolyte consisted of potassium carbonate and potassium hydroxide. The results indicated that hydrogenation of platinized titanium increases with time according to a parabolic curve. The influence of the platinum layer decreases with the passage of time. The presence of bichromate in the solution decreased the hydrogenation of titanium, with and without the platinum layer. The bichromate probably reacts with the hydrogen on the surface of the electrode, without separation of chromium. When platinized titanium is stored in air, or particularly in the carbonate-alkaline solution being studied, hydrogen content drops rather sharply with the current off.

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1/2 -- 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF ACTH ON THE DISTRIBUTION AND METABOLISM OF SULFUR
CONTAINING PROTEINS IN THE ADRENAL CORTEX -U-
AUTHOR-(03)-TKACHEVA, G.M., TSODIKOVA, L.B., MOLOTKOV, O.V.

COUNTRY OF INFO--USSR

SOURCE--PROBL. ENDOKRINOL. 1970, 16(2), 78-83

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL CORTEX, PROTEIN METABOLISM, ORGANIC SULFUR COMPOUND,
ACTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0256 STEP NO--UR/0502/70/016/002/0078/0083

CIRC ACCESSION NO--AP0117508
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0117508
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION OF S CONTG. PROTEINS IN THE RAT ADRENAL CORTEX INCREASED FROM THE ZONA GLOMERULOSA TO THE ZONA RETICULARIS. SINGLE AND PROLONGED (10 DAY) ADMINISTRATION OF ACTH (3 UNITS-100 G DAILY) DID NOT AFFECT THE LEVEL IN THE ZONA GLOMERULOSA BUT INCREASED IT IN THE ZONA RETICULARIS AND ZONA FASCICULATA. DURING PROLONGED ACTH ADMINISTRATION THE STIMULATION WAS GRADUALLY REPLACED BY A DECREASED PROTEIN LEVEL. FACILITY: LAB. NEIROENDOKRINOL., INST. MED. RADIOL., OBNINSK, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--COMPARISON OF THE PROPERTIES OF PHOSPHOLIPID BIMOLECULAR MEMBRANES
OF BRAIN, MITOCHONDRIA, AND BACTERIA -U-
AUTHOR-(03)-LIBERMAN, YE.A., TOPALY, V.P., TSOFINA, L.M.

7

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(1), 69-75

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CELL MEMBRANE, PHOSPHOLIPID, BRAIN, HEART, MITOCHONDRION,
OXIDATION, PHOSPHORYLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0629 STEP NO--UR/0217/70/015/001/0069/0075

CIRC ACCESSION NO--AP0117855
UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0117855

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDS. OF BIMOL. MEMBRANES ARTIFICIALLY PREPD. FROM PHOSPHOLIPIDS OF BRAIN, BULL HEART MITOCHONDRIA, AND MICROCOCCUS LYSODEIKTICUS BIOMASS WERE MEASURED IN THE PRESENCE OF SELECTED UNCOUPLERS OF OXIDATIVE PHOSPHORYLATION. THE CONDS. OF BRAIN AND MITOCHONDRIAL MEMBRANES INCREASED SIMILARLY ON USING 2,4,DICHLOROPHENOL (I), TRINITROPHENOL, CARBONYLCYANIDE,2,4,5,TRICHLOROPHENYLHYDRAZONE, CARBONYLCYANIDE,P,TRIFLUOROMETHOXYPHENYLHYDRAZONE, TETRAPHENYLBORON ANION, PHENYLDICARBOUNDECABORANE ANION, N,N,DIMETHYL,N,N,DIBENZYLAMMONIUM CATION, RESP. DICUMAROL, WHICH HAD PRACTICALLY NO INFLUENCE ON BRAIN MEMBRANE, INCREASED THE COND. OF MITOCHONDRIAL MEMBRANES; 2.5 TIMES 10 PRIME NEGATIVE6 M I, TETRACHLORO,2,TRIFLUOROMETHYLBENZIMIDAZOLE, 2,4,5,TRICHLOROPHENOL, AND PENTACHLOROPHENOL HAD A GREATER INFLUENCE ON MITOCHONDRIAL MEMBRANES THAN ON THOSE OF THE BRAIN. ALL TESTED UNCOUPLERS INCREASED THE COND. OF BACTERIAL MEMBRANES. IT WAS OBSD. THAT THIS KIND OF MEMBRANE IS PENETRABLE FOR THE CATIONS OF GROUP I. THE PRESENCE OF ALK. CATION CARRIERS IN BACTERIAL MEMBRANES IS ASSUMED. ON THE BASIS OF OBSD. HIGH COEFFS. OF ANION DISTRIBUTION IN MEMBRANES, THE PRESENCE OF A LARGE POS. CHARGE IN MEMBRANES IS ASSUMED. FACILITY: INST. PROBL. INFORM. TRANSM., MOSCOW, USSR.

UNCLASSIFIED

USSR

LIBERMAN, Ye. A., TOPALY, V. P., and TSOFINA, L. M., Institute of Problems in Information Transmission, Academy of Sciences USSR

"Comparison of the Properties of Bimolecular Membranes of Brain Phospholipids, Mitochondria, and Bacteria"

Moscow, Biofizika, No 1, 1970, pp 69-75

Abstract: The conductivity of bimolecular membranes of brain phospholipids, mitochondria, and Micrococcus lysodeikticus in the presense of various uncouplers of oxidative phosphorylation was compared. Trinitrophenol, 2,4-dichlorophenol, carbonylcyanide-2,4,5-trichlorophenyl-hydrazone, and other such agents produced virtually the same increase in conductivity of brain lipid and mitochondrial membranes. Dicoumarol had almost no effect on brain lipid membranes, but at concentrations of $2\cdot5\cdot10^{-6}$ or higher it increased the conductivity of mitochondrial lipid membranes. Tetrachloro-2-trifluoromethylbenzimidazole, 2,4-dinitrophenol, 2,4,5-trichlorophenol, and pentachlorophenol had a greater effect on mitochondrial lipid membranes than on brain lipid membranes.

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Microbiology

USSR

UDC 582.251.001.57

TSOGLIN, L. N., VLADIMIROVA, M. G., and SEMENENKO, V. Ye., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, Moscow

"Mathematical and Experimental Modeling of the Process of Autoselection of Microalgae in Continuous Culture"

Moscow, Fiziologiya Rasteniy, Vol 17, No 6, Nov/Dec 70, pp 1129-1139

Abstract: A mathematical analysis was made of the dynamics of growth of a multicomponent population of microalgae. A theoretical basis was developed for automatic competitive selection, and it was demonstrated that productive strains to suit predetermined conditions can be obtained in continuous culture. The theory was tested in a study of the dynamics of growth and change in correlation of forms in a multicomponent population consisting of Chlorella sp. K, Chlorella CO-10, Scenedesmus obliquus 125, and Chlorella vulgaris 7-23-1. Continuous cultivation was carried out at densities corresponding to the different growth stages (exponential and linear) and at various original concentrations of the strains. When the cultures were transferred from less active conditions to a reactor with a high intensity of external parameters, the change in the specific rate of multiplication

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TSOGLIN, L. N., et al, Fiziologiya Rasteniy, Vol 17, No 6, Nov/Dec 70, pp 1129-1139

was found to lag behind the change in photosynthetic activity by a time interval equal to the period of generation of a given strain. Differences in the average size of cells of strains forming part of the population had no effect on the kinetics of selection. Study of CO_2 exchange in the process of autoselection revealed increased photosynthesis by the multicomponent population due to a change in its qualitative composition. The experimental findings were consistent with the theoretical calculations in both the exponential and linear stages of growth.

USSR UDC 681.327

TSOGOYEV, T. K., and BERG, I. V.

"Method of Manufacturing Matrices"

USSR Author's Certificate No 273282, Filed 27/10/69, Published 14/09/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B290P)

Translation: In a well-known method of manufacturing magnetic multiple-aperture memory element matrices for memory units holes are cut partially through a ferrite plate using a special tool on an ultrasonic machine. Then a layer of material is ground off of the backside of the plate until the holes open clear through. This produces all necessary holes in the plate. After this, the control windings are produced on the plate by photographic printing methods in the form of printed conductors passing through the apertures in the plate. The method of producing memory element matrices based on multiple-aperture ferrite plates has the following defects: impossibility of magnetic isolation of neighboring elements on the multiple-aperture plate, which makes it difficult to increase the density of information and force the switching mode of elements in order to increase speed; difficulty of producing thin multiple-aperture ferrite plates due to their

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TSOGOYEV, T. K., and BERG, I. V., USSR Author's Certificate No 273282, Filed 27/10/69, Published 14/09/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B290P)

low mechanical strength (low plate thickness is necessary in order to decrease the inductance of the control leads on the matrix). The method suggested does not have these shortcomings and allows a matrix to be produced of magnetically isolated memory elements in the form of thin multiple-aperture cores with printed control windings. The purpose of the invention is to increase the density of information and the speed of magnetic memory elements. This is achieved by making notches in the plate in addition to the partial holes. The plate is then glued to a dielectric substrate on the side which carries the holes and slots, and the printed control conductors are applied, after which the opposite side of the plate is ground away until the slots and holes in which the ends of the conductors are located are opened. The ends of the conductors are contacted by printed conductors, forming the control wires passing through the apertures of the memory element plate. 1 fig.

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USSR UDC: 681.325

TSOKANOV, V. V., TORCHIN, A. L., PUSHKAREV, V. G.

"A Converter Which Transforms Code to Pulse Repetition Frequency"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 5, Feb 71, Author's Certificate No 293296, Division H, filed 16 May 69, published 15 Jan 71, pp 177-178

Translation: This Author's Certificate introduces a converter which transforms code to pulse repetition frequency. The device contains a reference frequency oscillator, a code-to-analog converter, a frequency comparison circuit, a controllable frequency divider which consists of a counter and discharge diodes, and a recording signal shaper. As a distinguishing feature of the patent, the operating frequency range of the converter is extended by incorporating circuits for coincidence of "ones" and "zeros" and a zeroing signal shaper. The output of the "ones" coincidence circuit is connected to the input of the zeroing signal shaper and to one of the inputs of the frequency comparison circuit, and the output of the "zeros" coincidence circuit is connected to the input of the recording signal shaper.

TSOKUR, O.P

MEDICINE

J-9605

SO: Military Medical Journal

NOV 1975

UDK 612.398.131/.132:616.21

Candidate of Medical Sciences, Lieutenant-Colonel of the Medical Service, A. P. Yaroslavskiy, O. P. Tsokur. Changes in the protein fractions of the blood in certain otorhinolaryngological diseases.

To study the albumin fractions in the blood of patients suffering from otorhinolaryngological diseases, we determined their phorograms (with the aid of the generally accepted method of electrophoresis on paper) — both before and after treatment. Accepted as the average normal values were the following indicators: total protein: 6 – 8 gr/percent: albumina — 60.7 ± 2.5 percent; globulins: α_1 — 5.2 ± 1.5 percent, α_2 — 6.5 ± 1.9 percent, β — 11.4 ± 1.7 percent, and γ — 16.2 ± 2.6 percent. The proteinograms of 60 patients were examined. In the case of 15 of them, acute sinusitis was diagnosed, 17 had chronic sinusitis, 7 suffered from a purulent inflammation of the middle ear, and 21 had chronic tonsillitis.

The most dependable changes (from 6 to 25 percent) in serum protein can be found in the case of patients with purulence of the accessory sinuses of the nose. These changes are characterized by a lowering of the albumin fraction and an increase in the globulin fractions. In cases of acute sinusitis, it is generally only the α-globuline fraction which increases (on the average, by from 4 to 6 percent), while in chronic sinusitis there is a 2 to 5 percent increase in the α_1, α_2 and γ fractions.

This fact can be used in differential diagnosis to distinguish chronic sinusitis from its acute form.

Examination of the phoregram of patients with chronic tonsillitis showed a lowering of the albumina content (by 6 to 8 percent), an increase in γ-globulins from 4 to 7 percent, and a slight increase in α_1 and — especially — in α_2 globulins (from 1 to 3 percent).

It should be noted that the α_2 and γ-globulin content remained high even after tonsillectomy, while the general protein deficit was reduced.

In patients with a chronic purulent inflammation of the middle ear, the phoregrams show very insignificant changes consisting of some lowering of the albumina content (from 2 to 6 percent) and, in a number of cases, an increase in α_1, α_2 and γ-globulins (from 1 to 2 percent).

Received in October 1969.

J-9605

UDK 616-099/355.72

Lieutenant-Colonel of the Medical Service V. A. Lutsenko. Some details of the work of a medical aid station in treating victims of toxic agents.

The use by the enemy of psychochemical toxic agents will, in our opinion, require a restructuring of the operating principles of our medical-evacuation system. Physical traumas and psychic disturbances caused by psychochemical means of warfare are, as a rule, not fatal. The confused behavior of stricken personnel, hallucinations, excited movement, stupor, a feeling of fear, etc. may result in a situation where the principal part of first aid assistance will have to be extended at the reception-evacuation department of the medical-evacuation system. The treatment of the injured would be carried out, until complete recovery (1 to 2 days), at the medical station or at the level of the medical battalion. Only in very severe cases of poisoning by psychochemical toxic agents would the sick and injured have to be transferred to other medical evacuation stages.

Received in August 1969.

Analytical Chemistry

USSR UDC [546.193:547.475.2]:543.253

YELENKOVA, N. G., TSONEVA, R. A., and DZHIMBIZOVA, D., Superior Chemical and Technological In-titute of Bulgaria, Sofiya

"Polarographic Study of the Arsenic (III) - Ascorbic Acid System"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, Vyp 3, 1972, pp 681-685

Abstract: Ascorbic acid (H_2L) forms complexes with a series of metal ions. Because As(III) forms a polarographically active complex with H_2L, it is necessary to analyze for H_2L only in a buffered solution. As(III) was determined by polarography during the reduction of Se^{+4} to Se^0. The composition of the H_2L complex with As(III) has the form $As(OH)_2HL$. The linearity and slope (the latter approximately one) of the pH vs log α (where $\alpha = \frac{[AsL]}{c'_{As} \cdot c'_L}$, the apparent dissociation constant) plot indicate that only one complex was formed. The stability constant β was determined from the equation $H_2L + As(OH)_3 \rightleftarrows As(OH)_2H_mL + (2-m)H^+ + OH^-$ and values of log β are numerically equal to 18.84 ± 0.11 and 18.63 ± 0.53.

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USSR UDC 612.82/.83-053.6.796

TSONEVA, ~~T. M.~~, AL'OKHINA, G. F., DANYLYUK, V. P., and ~~DUDNYK~~, A. I., Laboratory of Age Physiology of Sports, and Chair of Human Anatomy and Physiology, Odessa Pedagogical Institute

"Shifts in the Functional Activity of the Central Nervous System in Young Sportsmen"

Kiev, Fiziologicheskiy Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 33-37

Abstract: The youths -- 11-12 years of age -- participating in the investigations were divided into two groups, with group one, the experimental group, consisting of young people engaged in training for light athletics, and a control group consisting of youths not engaged in sports except for exercises prescribed in the school program. The reactivity of the central nervous system in group one was determined by shifts in the bioelectric activity of the cerebral cortex as recorded by the electroencephalograph in the 1st, 5th, 10th, and 15th minute after a ten-second run

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TSONEVA, T. M., et al., Fiziologicheskiy Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 33-37

at maximum tempo or exercises on a bicycle stand. The condition of the neurodynamics under conditions of muscular activity was assessed by shifts in the rapidity of development of sensorimotor reactions. The investigations established that the young athletes are able to endure physical loads greater than those endured by the young people not participating in light athletics, mainly due to activation of cortical structures and improved basic neurodynamic indexes. There is an improvement in the reactivity of the central nervous system permitting the performance of a maximum volume of physical activity at a moderate tempo, which also indicates the greater endurance of young sportsmen as compared with that of the control group.

ELECTRICAL ENGINEERING

Circuit Elements

USSR 7 UDC 621.314.2:621.317

LAKERNIK, R. M., SINITSYN, YE. P., TSOPIK, V. G.

"Automation of Testing of High-Frequency Balanced Long-Range Communications Cables"

Kabeln. tekhnika. Nauchno-tekhn. sb. (Cable Technology. Scientific-Technical Collection), 1970, No 61, pp 6-7 (from RZh--Elektrosvyaz', No 9, Sep 70, Abstract No 9.64.258)

Translation: The paper describes a cable assembly test line -- the experimental conveyer organized at the Moscow Cable Plant. Drums with cable are mounted on a step-by-step conveyer. First, the drum proceeds to a room for tests of the insulation with high voltage, and then the drum is transported to connecting lines of automatic measuring units situated over the cable (on the second floor). The units measure and record the parameters of the circuits, including the resistance and asymmetry of a loop, operating capacitance, coefficients of capacitance coupling and asymmetry, and cross talk attenuation. Later, the transporter moves the drum to a section where a test is made of the airtightness of the casing and the seal of the cable ends. Use of the conveyer in conjunction with the automatic measuring units makes it possible to decrease the cable testing labor input and floor space

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